Spring 5-4-2019

Increasing Environmental Education Accessibility Through New Media

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INCREASING ENVIRONMENTNAL EDUCATION ACCESSIBILITY THROUGH NEW MEDIA

by

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Portfolio

Presented in partial fulfillment of the requirements for the degree of

Masters of Science
In Environmental Studies

University of Montana
Missoula, MT

June 2019

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Introduction

My personal experience with environmental and sustainability education, much like my peers, was lacking in my K-12 education. The annual Earth Day activities, occasional field trips to urban forests and museums, and a highly competitive environmental science class in high school was all the exposure I had until I was at university. Had it not been for stumbling upon a sustainability minor in my undergraduate career, I would have known nothing about countless issues that should be common knowledge for people of all ages. In fact, When it comes to environmental education in the United States, there is a lack of mandatory content required for districts to teach. As of 2007, only 12 states have a by-law or requirement for K-12 environmental education instruction and 18 states have formal environmental education learner objectives and outcomes in their standards (http://www.fundee.org/campaigns/nclb/brief5b.htm).

After graduating with my Bachelor's degree in Liberal Studies and a minor in Sustainability, I knew I wanted to learn how to bridge the two together. While teaching students from Kindergarten to 5th grade, I noticed an immense gap when it came to environmental education. It felt like not much has changed since I was a student in the seat. My students were lacking the ability to connect nature around them in such a dense urban environment and take responsibility for taking care of the Earth. Most of them were plugged in the world of tablets and the internet. According to The Nature of Americans National Report conducted in 2015 and 2016, children ages 8-12 years old spend double the amount of time in front of a screen than outdoors. The average hours on a computer per week range from 13.2 to 19.2 hours where time outside for the week plummeted to 6.7 to 7.2 hours. How can the important environmental issues that should be taught in classrooms meet students where they are online?

As a frequent internet dweller in my late teenage years into my young adulthood, I became extremely fascinated with YouTube. The success of educational content on YouTube over the past 7 years has grown at an astronomical rate. Shows like Crash Course and SciShow have set the stage for accessible education. Each showing millions of subscribers and over a billion of views online. All one needs to learn is the internet and a device. This content is consumed by students of all ages, educators, and the general public. Anyone who wants to learn, can. Like I've seen at large YouTube conventions, many people that attended education panels used channels like these and more for enhancing lessons and concepts taught in classrooms and for home school. Although there are occasional environmental videos posted on these popular channels, there has yet to be a series dedicated to the basics of environmental topics.

By filling this gap and producing videos for environmental education, it can open an extensive range of possibilities. This portfolio shows projects that aim to create a larger outreach for environmental education through digital education content and expand already existing programs to enhance the learning and teaching experience. All of these components highlight the integration between environmental education and new media. By being based online, where many people spend their time, it can serve as a tool to get people outside. Audiences can learn more about the environment they are a part of and give them power and knowledge to make changes to become more responsible global citizens in their day to day lives.

Component One: EcoVentures

In collaboration with Jessie Hampton

Component One consists of the creation of EcoVentures, a video series that covers various environmental topics in order to help videwers understand human impact on the Earth. EcoVentures' mission is to encourage responsible global citizenship by: creating accessible learning resources, fostering connections between people and the world around them, and providing strategies for individual action. Our vision is the create an accessible and dynamic online community where individuals can actively learn and share ideas about taking care of the planet and its finite resources. We will work towards responsible global citizenship by helping viewers improve their own environmental literacy and implementing personal change through sustainable choices in their daily lives given the constraints of financial income, locations, and other circumstances. Every person is able to live a more sustainable life and EcoVentures will serve as a tool to get viewers outside, explore about their local place, and think critically about how personal practices and habits have an environmental impact.

In the scope of the portfolio, EcoVentures consists of 4 videos covering unit topics of waste, open spaces, urban places, and consumer habits, an additional 4 scripted videos, and dozens of future topics that will be covered in future episodes. The idea of Ecoventures is to begin educating about the basic knowledge what everyone should know and building to more complex and specific topics.

The videos developed are as follows:

Waste
What is Waste?*
How to Recycle

Urban Places
Walkability*
Green Spaces in Urban Places

Open Spaces
Where are Open Spaces?*
Leave No Trace

Responsible Consumerism
What to Do With Old Clothes?*
Choices in the Grocery Store

Videos marked with (*) indicate videos that have been produced.

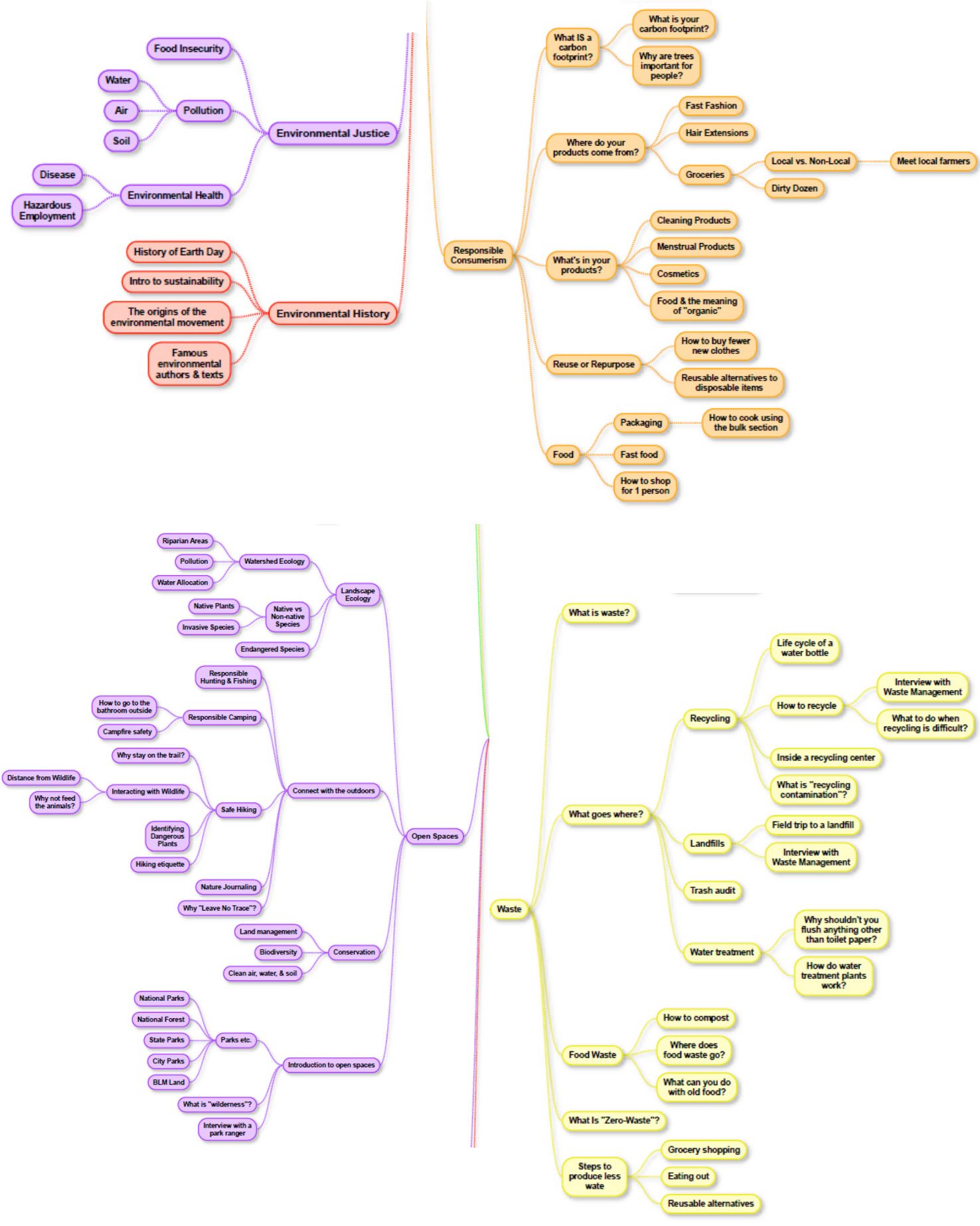
These units and scripts cover an array of topics in order to highlight a small sample of topics we wish to cover in order to include diverse aspects of environmental topics.

Process

Since EcoVentures was a collaborative project with Jessie Hampton, we had to be vigilant in making sure that our organization and process in creating EcoVentures was detailed and streamlined.

Brainstorming and Logistics

Early decisions that had to be made were the topics we wanted to produce videos on and how many we would be able to make given our knowledge of how time consuming the creations will be from idea to a finished video. The first step was to begin brainstorming environmental topics that we deemed as important or interesting for the average person to learn about. This resulted in a lengthy list that was then categorized into over arching units like waste, outdoor spaces, urban environments, food, climate impacts, and so on.


Environmental Justice
Food Insecurity
Pollution
Water
Air
Soil
Environmental Health
Disease
Hazardous Employment
Environmental History
History of Earth Day
Intro to sustainability
The origins of the environmental movement
Famous environmental authors & texts
Responsible Consumerism
What IS a carbon footprint?
What is your carbon footprint?
Why are trees important for people?
Where do your products come from?
Fast Fashion
Hair Extensions
Groceries
Local vs. Non-Local
Meet local farmers
Dirty Dozen
What's in your products?
Cleaning Products
Menstrual Products
Cosmetics
Food & the meaning of "organic"
Reuse or Repurpose
How to buy fewer new clothes
Reusable alternatives to disposable items
Food
Packaging
How to cook using the bulk section
Fast food
How to shop for 1 person
Open Spaces
Landscape Ecology
Watershed Ecology
Riparian Areas
Pollution
Water Allocation
Native vs Non-native Species
Native Plants
Invasive Species
Endangered Species
Connect with the outdoors
Responsible Hunting & Fishing
Responsible Camping
How to go to the bathroom outside
Campfire safety
Safe Hiking
Why stay on the trail?
Interacting with Wildlife
Distance from Wildlife
Why not feed the animals?
Identifying Dangerous Plants
Hiking etiquette
Nature Journaling
Why "Leave No Trace"?
Conservation
Land management
Biodiversity
Clean air, water, & soil
Introduction to open spaces
Parks etc.
National Parks
National Forest
State Parks
City Parks
BLM Land
What is "wilderness"?
Interview with a park ranger
Waste
What is waste?
What goes where?
Recycling
Life cycle of a water bottle
How to recycle
Interview with Waste Management
What to do when recycling is difficult?
Inside a recycling center
What is "recycling contamination"?
Landfills
Field trip to a landfill
Interview with Waste Management
Trash audit
Water treatment
Why shouldn't you flush anything other than toilet paper?
How do water treatment plants work?
Food Waste
How to compost
Where does food waste go?
What can you do with old food?
What Is "Zero-Waste"?
Steps to produce less wate
Grocery shopping
Eating out
Reusable alternatives

Brainstorming and Logistics Continued

From that, we narrowed our list into four units with 2 videos each for a total of 8 videos. We chose the content based of the topics we felt most interested in and did not require too much outside input. That meant that we bypassed the ideas that required to get permission to film in city owned places like the landfill or water treatment center and scheduling interviews with professionals that would be interested in sharing their work on video.

Other details that were discussed include the length of the videos, the vibe of the brand, creating a work breakdown structure to keep track of the progress of the videos, and materials needed for production (microphones, editing software, and cameras). We concluded that our finished videos should be no longer than 5 minutes. As for the feel of the series, we want to promote adventure so the brand was made to feel whimsical, simple, and like a scout troop. The work breakdown structure listed all the steps to get a video outlined to the finished project for each video. This way, we could keep track of when we finished a step and be able to jump around from video to video without getting lost. The breakdown structure was as follows:

Video		Outline	Script	Contact
Intro	***Intro***	x	x	x
waste 1	***What is waste?***	1/23	2/6	Recying center
waste 2	*Recycling*	2/1	3/8	Recying center
open spaces 1	***What are open spaces?***	1/23	3/14	x
open spaces 2	*Leave no trace*	2/1	2/16	
urban 1	*Green spaces*	2/27	2/28	x
urban 2	***Walkability***	2/1	3/14	x
consumer 1	*Groceries: food choices*	2/16	2/24	Get permission
consumer 2	***What to do with old clothes?***	3/13	3/28	x

Get Voiceover	Shot list	Shoot Talking	Get B-roll	Edit
x	x	3/23	x	In Progress
3/29	3/7	x	x	Farrah
x	3/7			*Jessie*
x	3/8	x	x	Jessie
3/7	3/8			*Jessie*
3/7	3/14			*Farrah*
x	3/14	3/25	x	Farrah
3/7	3/13			*Jessie*
3/29	3/28	4/2	x	Jessie

The final logistical detail at this stage was finding access to the equipment and software we needed. All the planning, scripting, and note taking was done using Google Drive. This way we could both be working on the same documents at the same time. This also easy for us to reference to for individual work and transferring scripts into Teleprompter Lite in order to read the scripts while filming. Other software used was Adobe Premiere Pro for video editing. We already had high quality cameras for filming, tripods, and an Ipad for script reading. By utilizing the university's One Button Studio in the library, we were able to record clear audio for videos that needed voice overs. These videos included "What is waste?" and "What to do with old clothes?".

Brainstorming and Logistics Continued

For audio that needed to be collected on location, UM Solutions Center allowed technology rental for students. This rental included a ZOOM Digital Audio Recorder and a lapel microphone that attached to the ZOOM. The ZOOM on its own was used for recording ambient noises, audio when both of us were on camera, and filming in quiet spaces. With the lapel microphone attachment, audio of the subject talking was clear even on a windy or busy street. This microphone was clipped onto our shirts as we were speaking in order to only pick up our lines.

Outlining and Scripting

With our eight topics on hand, we collaboratively shared our vision for each video. Each outline began with a hook to gain viewer interest and a line to tell the viewer what the video will be about. This objective used the framing of "Come along as we …". This phrasing was developed to make the viewer feel included. We also wanted to add the sense of exploration and adventure with our videos since the purpose of EcoVentures is to get our audience to interact with the world around them by using the content covered in the video. All eight selected topics were outlined to insure that the vision was the same and we included all the point we wanted to get across. Originally, we started with the goal of writing and producing eight content videos under four units, but quickly came to realize that it was not fisable to produce them within our time frame. We chose four, on from each unit, to produce: "What is Waste?", "Walkability", "Where are Open Spaces?", and "What to Do With Old Clothes?".

Once outlined, all videos were scripted using as much detail as possible. This included what will be said verbally, the location for each scene, the types of background footage (b-roll), and any materials we needed or contacts we needed to make.

The eight scripts are as follows:
Waste
What is Waste?*
How to Recycle

Urban Places
Walkability*
Green Spaces in Urban Places

Open Spaces
Where are Open Spaces?*
Leave No Trace

Responsible Consumerism
What to Do With Old Clothes?*
Choices in the Grocery Store

Videos marked with (*) indicate videos that have been produced.

What is Waste? - Script

Hook:
Jessie throws trash into dumpster
Farrah : Ow
Jessie: What are you doing?

Pop out of an empty dumpster with banana peel on head with trash bag

Objective: Come along as we find out what's happening in the dumpster!
Pop back down

Intro sequence

In person in front of dumpster

Did you know that Americans produce 230 million tons of trash a year? That's about 4.6 pounds per person per day!

Today, let's take a look at the waste we've been producing over the past few days.

Music
Stop motion of laying out trash/recycles/etc.
Contents:

- *Some food waste*
- *Packaging/plastic wrap*
- *Disposable drink cups*
- *Take out containers*
- *Food wrapping paper*
- *Most napkins (some brands compostable)*
- *Aluminum foil*
- *Office paper*
- *Cardboard*
- *Plastic bags (don't usually go to regular recycling center)*
- *Toilet paper & paper towel rolls*
- *Plastic jugs (milk, juice, sparkling water)*
- *Cans*
- *Plastic water bottles*
- *Glass jars and bottles*
- *Ice cream/juice/milk cartons*
- *Lightly used clothes & shoes*

Time lapse – sort into piles based on how it should be processed
Voice over/ stop motion Go through each category and talk about where it should go

Glass
Glass jars empty
VO: Glass jars can be cleaned and reused to store other items like art supplies, q-tips, cotton balls, pasta, or other pantry staples. If you don't want to reuse them, many cities recycle glass.

Stop motion filling jars with listed items

GFS - shot of putting jars in bin
Our city does not have a glass recycling program but we can bring jars to a local grocery store that will reuse them.

The ones we can't reuse or donate in our city, sadly, end up in the landfill.

Food Scraps
Food scraps stop motion dancing into > bucket with "compost label > compost pile (PEAS Farm?)
VO: Food scraps, like vegetable peels, apples cores, and egg shells can be easily composted to be used in gardening. Some communities make composting easier than others, so we'll be talking more about this in a later video. Food leftovers like dairy and meat products should not be composted. If you can't compost, most food scraps go in the trash.

Some cities also have collection services or drop-off locations for compostable materials.

Take out containers - *cup, GFS hot container, classic take out (plastic or styrofoam)*
Stop motion into trash can
VO: Most of the containers you get from restaurants are intended to be single-use. Some businesses provide plastic or cardboard boxes that can be recycled or composted, but most single-use items end up in the trash. Disposable drink cups, the wrapper your sandwich comes in, and styrofoam takeout boxes all have to be thrown away.

Plastic - *bottles and food packaging (berry container, milk jug, water bottle, colored bottle lids, plastic bag)*
Stop motion to recycling
VO: Plastic bottles and clear plastic food packaging can be recycled. Some places are specific on what they will take. Make sure to check the number on your plastic container to see if it can be recycled. The most common ones are the numbers 1 (clear) and 2 (opaque color; milk jug).

Number 1 plastics are always clear and include berry containers, water bottles, and some juice jugs.

Number 2 plastics are opaque, or not quite see through, like milk jugs.

Plastic grocery bags, produce bags, and bread loaf bags are all recyclable too. Instead of taking them to a recycling center, try your local grocery store.

Cans - *soda, canned soup*
Stop motion & recycling center
VO: Tin and aluminum cans are recyclable almost everywhere, but not everyone knows the difference between the two. Beverages usually come in aluminum cans. Soups and other shelf-stable foods come in tin cans. An easy way to remember is that you might heat up a tin of beans for taco night. Mmm… tacos.

Paper & Cardboard - *office paper, cardboard box*
Stop motion & recycling center
VO: Most recycling services take paper and cardboard. Cardboard boxes usually need to be flattened and not too dirty. You may be able to include cereal boxes or other paper food packaging with your cardboard recycles.

Plain white office paper is accepted at nearly all recycling facilities. Sometimes you can also recycle stapled, shredded, or colored paper, but not all recycling centers will accept these, so be sure to find out what's accepted in your area before you offer to empty the office paper bin.

Others - tetra packs, pizza boxes, aluminum foil, plastic wrap, chip bags, straw
Stop motion into trash can

VO: Unfortunately, items like grease-stained boxes, snack bags, straws, and single use wrappings cannot be recycled so they are going to have to go to the landfill.

In person on camera in front of dumpster from beginning shot

J: Check with your local waste management facility for details on what their guidelines and services are. Many places also offer mixed recycling which means that all your recycling goods can go into one bin and will be sorted at the center.

We try our best to reduce the amount of waste we produce by using reusable alternatives to disposable items.

F: You don't have to go dumpster diving to take responsibility for your trash! Try tracking your waste for a week. What do you throw out? Let us know in the comments! We have added resources in the description if you'd like to learn more about different types of waste.

Resources
Types of plastic: https://www.nontoxicrevolution.org/blog/7-types-of-plastic
https://www.learner.org/exhibits/garbage/solidwaste.html

How to Recycle - Script

Locations: Indoors, recycling center, campus trash cans
Recycling center, tossing cans into

Hook: So many things we use every day can be recycled.

Objective: Come along as we see what we can and cannot recycle!
(sort through, explore, find out, etc.)

Intro sequence

Like we saw when we were sorting through our trash bag, much that is thrown away can go somewhere else.

Recycling center as guide

Our local recycling center takes most of the things we need to recycle.

Montage of throwing recyclables dramatically into the bins
Plastic
Aluminum/tin
Paper/cardboard

But what about the rest? Our recycling center doesn't take these items, but that doesn't mean they can't be recycled or reused!

Montage again
Glass - filled with something new on counter/ GFS drop off
Plastic bags - grocery, bread, newspaper - Albertsons drop off
Other - Best buy bins Drop in
Electronics
Batteries

Eating a piece of cake in a clamshell plastic container.
That was a piece of cake!

What do you do with recycles when you're out and about? Sometimes you can find recycling bins that look like this one!

Go through campus recycling trash cans

Make sure your recyclables are clean, and don't put anything in the bins that doesn't belong. If items end up in the wrong bins, processing centers have trouble sorting them out and sometimes everything has to go in the trash. Contamination can slow down the recycling process and damage sorting machines. Different cities consider different materials to be contaminants, so find out what the regulations are in your area.

House
Many cities offer mixed recycling pickup services, which means everything can go in one bin, but you still need to make sure you only recycle things that your city can process!

To learn more about the recycling options in your area, check out the links in the description.

How do you recycle? Let us know in the comments!

Resources:
https://berecycled.org/search/
https://www.recycleacrossamerica.org/

What are Open Spaces? - Script

Generic forest/outside
Hook: It's the first warm day of the year!

Objective: Come along as we take a step outside and explore the great outdoors.

Intro Sequence

Generic forest/outside

We are lucky enough to live in western Montana where we have access to a lot of different open spaces. Let's take a look at the outdoor spaces near us.

Pull out map with pinpoint of Missoula.

Point out Lolo; zoom in and show up in person at location with sign

Here's Lolo National Forest. It's only 7 miles away from us which makes easy for us to visit. National Forests are public lands managed by the U.S. government and used primarily for recreation, conservation, livestock grazing, and timber harvesting.

So what can we actually do here? Lolo National Forest has designated campgrounds, plenty of hiking, disc golf, water sports, and permitted firewood collection and Christmas tree harvesting! Each National Forest is unique so do your research.

Here are some clips from other national forests we've visited recently!
B-roll - Sabino Canyon, Angeles, Dixie

Point out Travelers Rest on map; zoom in and show up in person at location with sign

Travelers Rest State Park is another great option for getting outside of our area. It's about 11 miles away. State parks are established by a state to preserve historic sites, beautiful landscapes, or future recreational areas.

In state parks, you can usually hike, but there may also be historical demonstrations and other educational events. Opportunities vary depending on the park, but there's always something fun to do!

B-roll - Goblin state park

Point out Ninepipes zoom in and show up in person at location with sign

Wildlife preserves are a great way to see wildlife in a natural habitat. Ninepipes Wildlife Preserve is about 50 miles away for us, which is perfect for a day trip! The nearby National Bison Range serves a similar purpose.

They provide great viewing of wildlife from safe distances. So break out your binoculars and nature journals. Some even allow hiking but it will have to depend on the wildlife you are viewing. It's hard to hike in a lake, and no one wants to get flattened by bison.
B-roll of Bison Range and birds

Point out Glacier zoom in and show up in person at location with sign

At 140 miles away, Glacier National Park is another fantastic day trip option for us, although we could always stay longer and turn it into a camping trip.

Like national forests, national parks are publicly owned lands managed by a federal agency. The National Park Service works to preserve the historical, ecological, and recreational value of these lands.

They tend to have stricter rules than other kinds of public lands in order to protect the park for generations to come. National parks have so much to offer, but know the rules before you go.
B-roll Glacier

Point out Yellowstone/Teton zoom in and show up in person at location with sign

If we wanted to take a vacation, we could travel 370 miles and make it to two more National Parks: Yellowstone & Grand Teton! That's too far for a day trip, but both parks offer breathtaking views and limited camping. Plan ahead so you can enjoy your visit!

B-roll NP - Lot of them

Did you know there are 61 national parks in the United States as of 2019? There could be one in your backyard!

In person at a city park with map in hand

But what if you are not able to visit one of these places? Not to worry! City parks offer a large array of opportunities to interact with the outdoors.

Quick 5 second montage of park fun (swing, sun soaking, reading under tree, etc.)

Generic nice background

Pull out a map of your area and see what kind outdoor spaces are around you.

Before you head out, be sure to check the rules and regulations of the unique place you plant to visit and remember to do you best to lessen your impact.

No matter where you live, you can probably find the great outdoors.

Leave No Trace - Script

Locations: hiking somewhere, b-roll from trips, campsite with tent

Unzip tent door

Hook: Spending time outside is great, but with great fun comes great responsibility.

Objective: Come along as we learn to be responsible protectors of the great outdoors!

Intro Sequence

When it come to the outdoors, there are a few steps we all can take in order to minimize our impact on nature.

Go on hiking/camping trip
"Responsible" person voice over whole time
"Irresponsible" on screen doing Don'ts, joined by "Responsible" for Do

1) Plan ahead and prepare
DON'T head out into nature unprepared. You might run into unexpected weather.

Rain

The wrong type of clothes and shoes can make or break your trip.

DO plan ahead and be prepared for any outcome
Check the forecast and make sure you have enough food, water, and clothing. Even if you're already familiar with the area, bring a map.

First aid kits are always useful because you never know what might happen. Know the regulations, permits, rules, and guidelines for where you are going.

Show examples as listed

2) Travel and camp on durable surfaces
DON'T alter a place to make it a good campsite. Good campsites are found and not made. Stick to designated camping locations or look for sturdy, flat, dry surfaces.

Tent on incline

Going off trail can alter and disturb the habitat of the plants and animals around you. Hiking on uneven surfaces can lead to great injury while exploring the outdoors.

"Step" on flower

DO Stay on the trail and camp only in designated areas. Camps should be set up 200 feet away from lakes and streams. Remember that in the outdoors, we are all visitors of nature. Be considerate to your wild neighbors!

3) Dispose of waste properly
DON'T Litter or leave food scraps behind. It can be disastrous for the wildlife in the area. Small animals can become caught in trash and strangled or starved to death. Other animals like bears, coyotes, and raccoons that eat food scraps may learn to associate humans with food and become dangerous to visitors.

DO Pack out what you take with you. We like to pick up trash on our adventures as well and put it in the proper trash cans when we find them.

Use the restroom at the beginning of the trail if possible. If it's not an option, remember to walk 60 to 75 paces away from the trail and any water sources. To learn how to pee and poo outdoors with dignity, we've left a link the description.

4) Leave what you find
DON'T Take "souvenirs" from nature. There are many places where you can hunt, fish, or cut firewood, but doing so nearly always requires a license or permit. If everyone takes pieces of the outdoors home with them, we degrade the habitat over time.

DO Leave rocks, plants, and other natural objects where you find them. Leave nature better than you found it.

5) Minimize campfire impacts
DON'T make fires just anywhere or leave them unattended even for a few minutes. They can have disastrous impacts like wildfires. Don't ever leave a smoldering fire to burn out on its own.

DO know where fires are permitted (see tip #1 Plan and prepare) Keep fires small and know how to put out a fire properly.

6) Respect wildlife
DON'T feed or approach wildlife. It can damage their health, changes their behaviors, and can very dangerous for them and for you. Never let your pet harass wildlife, either.

DO Use the "rule of thumb." If you can cover the entire animal with your thumb at arm's length, you are at a safe distances. Use binoculars or a camera to get a closer look.

Always control your pet and comply with leash regulations. Some parks do not allow pets at all! Plan accordingly.

7) Be considerate of other visitors
DON'T play loud music or make lots of noise in a shared campground or while hiking.

Similarly, don't try to "leave your mark" on the places you visit. Carving or painting your initials on trees or rocks may seem harmless, but it is still vandalism and it has negative impacts for both the local wildlife and other visitors' experiences in that place.

DO let others enjoy the sounds of nature in the way they prefer. Use headphones if you must listen to music while hiking. Be respectful of other users on the trail. Step to the side of the trail when you meet horses or other livestock. Stay to the right and walk single file to allow other hikers to pass. Common practice is that hikers going downhill yield to hikers going uphill in the opposite direction.

Talking with a view

Nobody wants to see a bunch of trash when they visit the park! Everyone needs to do their part in order to keep these beautiful places pristine so we can all continue to enjoy them well into the future. The Leave No Trace technique pushes us to take responsibility for our actions while recreating in the outdoors.

In person in nature

To learn more about Leave No Trace and other resources see the links down in the description.

Remember “Take only pictures, leave only footprints.” See you on the trails!

Resources:

The Brain Scoop - “Get Outside” video: https://youtu.be/YXg55KU7mnQ

https://lnt.org/
https://lnt.org/learn/7-principles

Walkability - Script

Locations: downtown Missoula, b-roll of other cities, Milwaukee/Riverfront/Kim Williams/Bitterroot trails, public transit, M overlook into Missoula

Hip Strip

Hook: There are so many different modes of transportation.

Quick clips over VO of cars, bike, bus, plane as listed

Cars, buses, bikes, and airplanes all help us to get from one place to another, but my favorite way is with my feet.

Objective: Come along on a walk with me and see what makes a city walkable.

Intro sequence

Near Higgins & 1st

The walkability of a city measures how friendly the area is to walking. Things like pedestrian walkways, safety, and how close essential shops are to where you live are all important when calculating the walkability of a city.

Screen grab of searching walkability score for our area in ¼ screen or ⅓ of screen

We can assess walkability on a scale out of 100. This score take many factors into account like the distance to

B-roll

grocery stores, school, parks, libraries, restaurants, and shops.

Back to screengrab
The maximum score will have all of these places within a 5 minute walk.

B-roll People doing stuff

Accessible, safe sidewalks are also a key factor in evaluating walkability. A city is only truly “walkable” if pedestrians of all abilities can get around safely.

In person Caras Park

Walkability affects the health of the community, the surrounding environment, and the local economy.

VO with b-roll (people walking by multiple angles and different sidewalks, aerial view from parking structure)

When people can walk to the places they need to go, there are fewer cars on the road, which means less exhaust we all breathe in! Walking is also a good low-impact way to get exercise, which is great for both physical and mental health.

Whether you're a kid going to school or an adult working in an office, most of us spend too many hours sitting anyway. So get those legs moving!

More b-roll - gas station, cars driving
Walking trail with ped signs in the background
Front st background

More people moving and using those wonderful feet means less congested streets and lower CO2 emissions. Walking saves lots of resources too! If people can get places by walking, they don't all need to own cars. This saves gas, but also reduces the amount of parking required. Cities can use land more efficiently if they don't need to create space for hundreds of parked cars in the busiest areas.

B-roll of cars, buses, airplane, bike

Using cars, buses, airplanes, or even bikes can cost money. From vehicle maintenance to fuel, it can add up. Walking is free! It increases social interactions and fosters a sense of pride in our communities by forcing us to slow down and appreciate the little things.

XXXXS

Walkable areas also promote greater foot traffic through retail and business spaces, which gets people shopping local!

Take a look at the resource in the description to look up the walkability in your neighborhood.
What things do you think can be improved to increase the walkability score around you?

Resources:
https://www.walkscore.com/walkable-neighborhoods.shtml
https://www.vox.com/the-goods/2018/10/26/18025000/walkable-city-walk-score-economy

Green Spaces in Urban Places - Script

Locations:
City parks -
Gas Park - seattle
Clark Fork Natural Area
Sacajawea Park
Backyards -
Botanical gardens -
Garden of a Thousand Buddhas - Missoula
Missoula Native Plant Garden (at Fort Missoula)
Pocket park - oasis in a bustling city
Waterfall garden park - seattle
Community Gardens -
GCH
Walking trails -
Undeveloped strips of land connecting wild areas that animals can travel along

Tight shot in a park view is basic tree nature

Hook: What do you picture when you think of "nature"? Forests? Mountains? The ocean? Maybe you picture a bear fishing for salmon or a herd of deer grazing in a meadow. However, even in the most bustling cities, we can still find nature everywhere.

Zoom out to basic city park

Objective: Come along and grab your nature journal *(switch?)* as we explore green spaces in the city!

Intro Sequence

There are so many places to observe nature in a cityscape.

Take city parks for example. There are trees, squirrels, insects, and even flowers! Going to the park is an easy way to spend some time outside, no matter how old you are!

Close ups of trees, squirrels, insects, and flowers in park as listed in VO

Pocket parks create an oasis for people in a bustling city. Many species of plants can flourish among the steel, concrete, and glass of large urban spaces. They add a pop of green and provide a much-needed break from the chaos of our fast-paced society.

B-roll of waterfall park

Talk to camera with walking trail in background

Walking trails are a good way to get some exercise and be outside. Sometimes animals use these trails too! In the midst of a city full of skyscrapers, houses, and busy streets, trails can act as unofficial wildlife corridors between undeveloped areas. Keep your eyes open for birds, deer, coyotes, and other animals that have learned to coexist with humans in the city.

Cut to clips of people walking, cute dogs, or interesting

Talk to camera with garden in background

Botanical gardens are curated gardens where a large array of plants are grown for public display and scientific research. Many botanical gardens help educate people about native plants, while others offer a chance to learn about different cultures. They also protect the environment through plant preservation and attract pollinators. It's unBEElievable how much you learn while relaxing in a botanical garden.

Close up of bees pollinating flowers and general flowers

In a backyard talking to the camera

Even if you can't get to a garden, trail, or park, you probably have more nature than you think in your own backyard! See what plants, animals, and nature sounds you can observe just by stepping outside your door.

We're here with nature journal extraordinaire Jenah to learn how to nature journal.
    What is nature journaling?
What can we learn from nature journaling?
    Why do you enjoy nature journaling?
    How can we start a nature journal?

Nature journal - what do you see and hear? In one place
1 plant
1 animal
1 sound description

Nature journals are a way to keep track of your observations while exploring green spaces in your neighborhood. Join us as we take a moment to draw and write our observations. All you need is a pencil or pen and some paper.

Timelapse ish thing for 5-8 seconds + Show

There are so many different ways to journal. Thanks Jenah!

Same park from intro - ground with crack sidewalk nature

The natural world finds a way the persevere even in developed areas. On top of roofs or in the cracks of sidewalks, it's everywhere we go if we just look close enough.

Resources:
https://www.treepeople.org/sites/default/files/pdf/resources/City%20of%20Los%20Angeles%20Residential%20Parkway%20Landscaping%20Guidelines.pdf

What to Do With Old Clothes? - Script

Background music
In a closet or surrounded by clothes

Hook: We've all seen those videos with crazy, impractical ways to repurpose old stuff. They're fun to watch, but what can you actually do to reuse your torn, stained, or worn out clothes if you don't have a degree in arts and crafts?

Objective: Come along as we learn ways to keep old clothes out of the landfill!

Intro sequence

Title card - alterations

With jeans, it's not so much a question of if they'll get torn, but when. Alterations to your clothing can be super easy.

VO with time lapse of crafts
If you don't want holes as a fashion statement, patches are a great way to cover them up and add a little extra pizazz.

Torn pants are also easy to turn into shorts. All you need is a pair of scissors and some chalk.

Grimy or frayed shoelaces are easy to replace. You may have some spares or thin ribbon can work too! Just make sure to seal the ends.

In person with glue and needle + thread
Before you decide to discard items, take a look and see if you can fix them first. Fabric glue and a few stitches can work wonders.

Title card - repurpose

What if it's something you just can't fix? Don't throw it out yet! There might be a way to repurpose it for something else!

VO with time lapse of crafts

Socks with holes can double as dusters for hard to reach places. Larger socks easily slip over swiffer sweepers as reusable pads.

Old towels can also be made into reusable mop pads and cleaning rags. Just cut them down to size and use fabric glue to keep it from fraying. Now, you can clean over and over and over and over again.

Ah the good ol' trusted t-shirt. There are endless possibilities of what you can do. Like the towels and socks, t-shirts can become an easy cleaning rag.

Throw pillow cases are a simple craft. There are multiple ways to make one. Sewing, gluing or tieing all work well to add a pop of color to your space.

If you are a crafty wizard like Jessie, t-shirt yarn might be something you need to knit or crochet into new creations.

Dog toy to Coco
Let's not forget about our furry friends! T-shirts and jeans can be made into dog and cat toys. If you don't have pets, you can give them to a friend or donate to animal shelters.

Title card - donate

In front of thrift store

If you don't have the time to get crafty, donating clothes that are in good condition to thrift stores is an easy way to declutter your closet.

B-roll of thrift store, donation, and clothes swap
Another way to freshen up your wardrobe is to get some friends together for a clothes swap.

B-roll of finding clothes
You never know what unique items you'll find in your friends' closet or your local thrift store!

Give blanket to Coco
Pillows and blankets get worn out too. If they're too tattered to donate, try turning them into a warm bed for your pet! Animal shelters will often take blankets for the pets to stay cozy.

In person with made crafts
What is your favorite way to alter or repurpose your stuff? We have links to detailed tutorials for the crafts we made in the description below.

Get creative and we'll see you next time!

Resources:
T-shirt produce bag https://www.deliacreates.com/t-shirt-produce-bag/
T-shirt pillow (tied): https://modgrls.wordpress.com/2012/01/28/stop-do-not-throw-out-that-t-shirt-upcycle-it/

Dog toys
http://www.sewhistorically.com/5-different-diy-no-sew-t-shirt-dog-toys/
https://colininchicago.wordpress.com/2015/07/28/diy-water-bottle-dog-toy/

Choices in the Grocery Store - Script

Locations: inside grocery store(s)

Unpacking groceries in apartment
Pile up groceries and take them out to show waste - stop motion

Hook: Our groceries are piling up and so is our trash! Did ever notice how much food packaging we throw away?

Objective: Come along as we learn how to shop and reduce waste at the same time!

Intro Sequence

Rewind and go back to the grocery store
- *Shopping with viewers - list*
- *Tomatoes*
- *Cucumber*
- *Pasta sauce*
- *Herbs - basil*
- *Shelf vs bulk bin - noodles*
- *Mushrooms*
- *Leafy greens*
- *Almond milk - recycle choice*
- *apples*

Infomercial vibe
"Responsible" person voice over whole time
"Irresponsible" on screen, reacting to advice from voice over

In grocery store
Let's try this again

Buying produce
Apples
A plastic bag doesn't provide much protection for those apples! Just put them in the cart. You'll wash them when you get home anyway.

Tomatoes
Cherry tomatoes might be cute, but maybe try tomatoes on the vine. No plastic box necessary!

Cucumber
Do you really need your veggies to be shrink-wrapped?

Mushrooms
If you have the option for unpackaged mushrooms, use your produce bag to hold them instead of pre-wrapped containers.

Leafy greens & Basil
You can put those in your cart too, but if you feel like it calls for a bag, see if your grocery store recycles them!

Shelf items
Pasta sauce

Look packaging that can recycled in your area. You can't recycle glass in your area! Get a can not a jar.

Pasta
There are so many choices when buying pasta! Box? Bag? Bulk? Don't buy something you'll have to throw away. The bulk section is usually cheaper and good for buying custom amounts or trying new things.

Refrigerator
Almond Milk

Look for items that come in containers that can be recycled in you area. Things like wax coated cartons are often difficult to recycle.

Check bottom of plastic number

At Check out
Conveyor belt
Group loose items on the conveyor belt. Keep those apples together!

Bags
Nowadays, reusable bags probably seek you out or call to you every time you go shopping. Put them first on the conveyor belt so your cashier will know that you are a shopping pro!

No worries if you forget your reusable bags! New habits take time. Just make sure you find ways to reuse or recycle the paper or plastic bags you get from the store.

Show bags being put in bag recycling

Quick unpack/cooking montage ~5 seconds
Talking with meal

Making less waste is easy peasy when you keep these tips in mind! Look how little we produced this time. Nobody's perfect be we can all do our best to be better.

Share your own creative waste-saving shopping tips in the comments!

Resource:
https://www.plasticfilmrecycling.org/recycling-bags-and-wraps/find-drop-off-location/

Shot List

Developing a shot list for every video became a vital part of this project. Since we were filming several videos at the same time, it provided a view of which videos needed to be filmed where. The shot list insured that we would get everything we needed from that location before we moved on which proved valuable when looking for b-roll we needed and locations that were a trip to get to like Glacier National Park. This also helped to take advantage of the occasional good weather day where we had to have intense shooting days before storms rolled in. Taking time in being as detailed as possible made the flow on shooting days so much easier.

Waste

W1: What is waste?

- Voice over
- Dumpster
  - Intro and conclusion
- Indoors on floor or table for stop motion
  - Glass (refill with new items)
    - Jessie: salsa jar, pasta jar
    - Farrah: Bottle, jam jar
  - Food scraps (into compost bucket)
    - When we cook from C1
  - Take out food packaging (into trash can)
    - Jessie: Styrofoam box
    - Paper coffee cup
    - Break espresso
    - Farrah: Sandwich wrapper
  - Plastic bottles, jugs, & shopping bags
    - Jessie: milk jug, salsa bottle, fruit clamshell, 2 L soda bottle
    - Farrah: Almond milk, small berry container, plastic bags, water bottle
  - Cans and tins (tacos?)
    - Jessie - bean tin, soda can
    - Farrah - Can, coconut milk tin
  - Paper and cardboard (folding paper, into paper recycling bin)
    - Jessie - cardboard boxes, paper bags
    - Farrah - computer paper/scraps, Toilet paper roll
  - “Other” items (into the trash)
    - Jessie: Tetra packs, Pizza boxes, Chip bags, Plastic straw
    - Farrah: Aluminum foil
- Apartment
  - In kitchen, sorting trash intro
- GFS
  - Glass recycling
- PEAS Farm
  - Food scraps onto compost pile
- Recycling center
  - Plastics #1 & #2
  - Cans & tins
  - Paper and cardboard
  - Vlog conclusion
- Albertsons
  - Plastic bag recycling

W2: How to recycle?

- Voice over
- Recycling center
  - Toss assorted recycles into bins
- Apartment
  - Reusing (refilling) glass
- GFS
  - Glass drop off
- Albertsons
  - Plastic bag recycling
- Best Buy
  - Electronics recycling
  - Battery recycling
- Campus
  - Eating cake out of clamshell container
  - Recycling bins at UC or NAC
- House
  - Mixed recycling bin
  - Closing

Open Spaces

OS 1: What are open spaces?

- Voice over
- "National Park" in person
- Map locations
- Hiking trail
  - Intro
- Map of Montana
- Parks B-roll
  - National Forest
    - Lolo National Forest
    - Angeles National Forest
    - Dixie State Forest
  - State Parks
    - Travelers Rest
    - Goblin Valley
  - Wildlife Preserves
    - Ninepipes Wildlife Refuge
    - Antelope Valley California Poppy Reserve
  - National Parks
    - Glacier
    - Yellowstone
    - Tetons
    - Saguaro
    - Bryce
    - Zion
    - Yosemite
    - Capitol Reef
  - City Park

OS 2: Leave No Trace

- Voice over
- Campground
  - Camp on durable surfaces
    - Don't - Bad campsite (near trail or stream?)
    - Do - Tent set up in actual campsite
  - Dispose of waste
    - Don't - Trash outside bear-proof trash can
    - Do - Putting trash in trash can, taking recycling home
  - Campfire impacts
    - Don't - Build fake fire in a terrible place but don't actually light
    - Do - Build a fire in a fire ring
    - Cook s'mores
    - Extinguish properly
  - Be considerate of others
    - Don't - Loud tent
    - Putting headphones in while hiking
    - I Was Here post-it
    - Other people's vandalism
- Hiking Trail
  - Be prepared
    - Don't - Wrong clothes and shoes
    - Do - Appropriate clothing
  - Food
    - Water
    - First aid kit
    - Map
    - Camera
  - Travel on durable surfaces
    - Don't - Go off-trail & fall down
    - Ace wrap bandage for twisted ankle
    - Do - Stay on the trail, yield to hikers going uphill
  - Dispose of waste
    - Don't - Litter
    - Do - Pick up trash on trails
    - Use the bathroom at the trailhead
  - Leave what you find
    - Don't - Take rocks, plants, etc.
    - Do - Leave stuff where you find it
    - Take pictures instead
- Respect wildlife
  - Don't - Feed the wildlife
  - Do - Show rule of thumb
  - Use binoculars to get a closer look
  - Keep dogs on leash
- Closing
- Picking up trash on the trail
- Rain
- Unprepared for bad weather
- Feeding the "wildlife" dog toys

Urban Places

U1: Green spaces in Urban Places

- Voice over
- Seattle B-roll
- City parks
- Pocket parks
- Parks in Missoula
  - Caras Park
    - Tight shot; zoom out to show city
    - Closing bit
  - Sacajawea Park
  - Clark Fork Natural Area
    - Nature journaling with Jenah
    - Broad shot of us sitting and journaling
    - Montage of journal results
  - Close ups
    - Trees
    - Squirrels
    - Insects
    - Flowers
- Walking trails
  - Riverfront
  - Kim Williams
  - Milwaukee
  - M trail?
- Botanical gardens
  - Close ups of flowers and bees
- Someone's backyard

U2: Walkability - location change

- Street
  - The Xs
    - Intro talking
    - Walking down Higgins
  - Transit B-roll
    - Cars
    - Bikes
    - Bus
    - Plane
  - Pedestrian B-roll
    - People doing interesting activities
    - Close up of feet
    - Aerial view of morning traffic from parking structure
  - In front of the post office
    - Talking at camera
  - Hip Strip
    - Talking at camera
- Screengrab of searching walkability score
- Walking trail with pedestrian sign
- Gas station (b-roll)

Consumerism

C1: Choices at the grocery store – food packaging; grocery bags

- Apartment
- Unpacking groceries
  - Talking
  - Montage
- Cooking meal
  - Montage
  - Eating meal & talking
- Good Food Store
- Intro heading into store
- Produce
  - Try apples in a plastic bag; then putting them in the cart
  - Reaching for cherry tomatoes; getting vine tomatoes instead
  - Shrink wrapped cucumber; naked cucumber
  - Packaged mushrooms; unpackaged mushrooms
  - Leafy greens
- Shelf items
  - Pasta sauce: glass vs. can
  - Pasta: box vs. bag vs. bulk
- Refrigerator
  - Almond milk packaging
  - Point out recycle number on plastic bottle
- Checkout
  - Conveyor belt - group like items
  - Bags
  - Put first on conveyor belt
- Albertsons
  - Recycling plastic bags

C2 : What to do with old clothes?

- Apartment
  - With clothes
  - Holding jeans
  - With fabric glue & needle & thread
- Table for crafting
- Jeans
  - Patch hole with cute color
  - Cut off into shorts (chalk to draw line)
- Shoelaces
  - Replace with new ones
  - Replace with ribbon (seal ends with flame)
- Socks
  - Dusting
  - Swiffer
- Old towels
  - Cut up into cleaning rags
- T-shirts
  - Cleaning rags
  - Throw pillow

- Produce bag
- Yarn

Dog toys

- T-shirt
- Jeans
- Water bottle
- Blanket

Thrift store

- Buying second-hand clothes
- Giving away clothes in good condition

Clothing swap

- Other apartment, maybe extra person

Recording and Shooting

The next step included recording voice overs, collecting B-roll, and shooting on location. Each was posed with their own challenges. The voice overs were recorded before the visuals. In the "What is Waste?" video, it worked out well, but in "What to Do With Old Clothes?" the craft that were shown need more audio instructions to improve clarity.

Collecting B-roll provided the challenge of getting visuals that can accurately display the subject matter. For example, the "Walkability" video would have benefited from shots from other larger metropolitan areas besides Missoula. Since the scripts were not done when we were traveling to these regions, we could not showcase specific examples in places like Tucson, Los Angeles, and Seattle.

Shooting on location required to figure out shot composition and filming in public. Creating shots required the setting up all the equipment, working with the lighting, and finding visually interesting backgrounds without being too distracting.

Editing

The use of new equipment was a learning curve we needed to master. Both of us had basic experience in video editing before, but in order to maintain consistency, I had to learn how to transfer my skills to Adobe Premiere Pro. The editing process for each video took about 5 to 6 hours. The use of audio equipment also had the addition of learning how to sync the audio files with the video. In our first test out on the field, we learned that making sure to start and stop the video and audio at the same time was important to save time in editing. We also made sure to make use claps in order to visually see where the peaks of the audio matched from the ZOOM and the standard camera audio.

Next Steps

The future of EcoVentrues includes creating a plan for launching on YouTube later this year. There is a significant amount of planning that needs to happen before hand. These details include discussing the order of release for the videos and units and having a backlog of content so that once live, we will have the ability to spend enough time on each video to meet our standards.

We would also like to work on incorporating field trips to places we wish to talk about like showing a landfill, recycling center, and water treatment centers since it may not be an opportunity for all viewers to see these places. Interviewing diverse professionals in various environmental fields is also an addition we would like to make. This can show that people with different backgrounds can work in these places. It will also allow us to learn with our viewers. Some ideas include having a professional show us how to recycle, compost, how to behave in outdoor spaces, and more.

Impact

The future of EcoVentrues includes creating a plan for launching on YouTube later this year. There is a significant amount of planning that needs to happen before hand. These details include discussing the order of release for the videos and units and having a backlog of content so that once live, we will have the ability to spend enough time on each video to meet our standards.

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Component Two: EcoVentures Lessons

Component Two includes flexible lessons for late elementary age students to correspond with EcoVentures videos. This curriculum will provide activities in order to get viewers outside and engage with the content introduced in the videos. EcoVentures curriculum seeks to provide accessible learning resources that foster connections between people and the world around them and inspiring individual responsibility for protecting the environment. These activities will be free for anyone to use including educators, parents, and anyone looking to further their experience. Lessons aligned with Next Generation Science Standards but can include various other subject matter.

EcoVentures is adaptive so that lessons can be used to fit the educators' needs. Since the video series will be continuously produced once launched, the catalogue of lessons will grow as well.

The lessons created are as follows:

Waste: What is Waste?
Waste Audit

Open Spaces: Where are Open Spaces?
Nature Journaling

Urban Places: Walkability
Create/Map a Walkable City

Consumerism: What to Do With Old Clothes?
Old Clothes Toy Workshop

EcoVentures Lesson Plans

For Upper Elementary Students

Introduction

Welcome to EcoVentures' Curriculum!

EcoVentures' Curriculum is developed to be used as an extention of the EcoVentures video series. These lessons will take content covered in a video to real life engagement activies.

Audience

Late Elementary age students but can be scaled up or down to suit the students' level.

Scope

EcoVentures curriculum is meant to be continuously growing in content as new videos are produced.

Model

EcoVentures is an adaptive curriculum that can be used to fit the educators' needs. It can be used as support across different content areas and grades levels.

Mission

EcoVentures curriculum's mission is to provide accessible learning resources that foster connections between people and the world around them and inspiring individual responsibility for protecting the environment.

Vision

Our vision is to make content that gets our audience outdoors to explore the world around them. We will work toward responsible global citizenship by helping people improve their own environmental literacy and implementing personal change through sustainable choices in their daily lives. We strive to lead by example by reducing our ecological footprint and encouraging others to do the same.

Assessment

Assessment is at the educators' discretion. It is suggested that formative assessment can be used in the form of presentations, journaling, and/or instructor observation.

What is Waste?

Time

30-40 Minutes

Objectives

Students will be able to:

- Collect and analyze data that shows their waste production
- Assess their individual waste habits
- Construct a plan to lessen their waste

Standard(s)

NGSS
5-ESS3-1.
Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.
MS-ESS3-3.
Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.

EE Guidelines
Middle School
Strand 1.C. Collecting information - Learners are able to locate and collect reliable information about the environment or environmental topics using a variety of methods and sources

Strand 3.1.C. Identifying and evaluating alternative solutions and courses of action - Learners are able to identify and develop action strategies for addressing particular issues.

Strand 2.4.A. Human/environment interactions - Learners understand that human-caused changes have consequences for the immediate environment as well as for other places and future times.

Materials

- Trash Audit worksheet

What is Waste? Continued

For the Educator

Did you know that Americans produce 230 million tons of trash a year? That's about 4.6 pounds per person per day! The best way to make changes in waste habits is by seeing what we throw away. From recyclable items to food scraps, much of what is thrown away can be sorted somewhere else to be reused and recycled. This waste audit will lead the learner to think critically about what they are throwing away in the garbage and evaluate if items they tend to throw away could go somewhere else, like compost or the recycling. Waste audits can give a view into consumer habits and help discover reusable alternatives for disposable items.

Activity

This trash audit can be done at home, in a classroom, for the whole school, etc.

1.) Introduce the students to the concept of a waste audit and that they will be keeping a record of what they are throwing away over the next week.
2.) Demonstrate how to use the Waste Audit worksheet
    - Write the type of waste (food waste, plastic waste, glass, paper, etc)
    - Tally how much was thrown away (ex: peels from 2 bananas, 1 water bottle, etc.)
    - Where did it go? (trash can, recycling, compost, etc.)
3.) Have students collect data for a week.
4.) Have students get together in groups or pairs and prompt the following questions:
    - Are there any similarities and differences between your peers' waste habits?
    - Are there any trash can items that could have gone somewhere else?
    - What are some things you can do to lessen the amount of waste you produce?

Assessment

Formative:
Waste Audit Worksheet to assess participation and collection of data

Resources

Types of plastic: https://www.nontoxicrevolution.org/blog/7-types-of-plastic
https://www.learner.org/exhibits/garbage/solidwaste.html

Waste Audit

In this activity, you will have 15 minutes to take a visual audit of waste in cafeteria trash cans. First, make a prediction on what you might find. Second, categorize types of waste you might find. Then, record how many items of that category you find and examples for each one that you saw. Lastly, total your data and draw conclusions and compare your answer to what the results were.

Type			
Tally			
Total			

Type			
Tally			
Total			

Where are Open Spaces?

Time

30-40 Minutes

Objectives

Students will be able to:

- Express observations in their nature journal using at least 2 senses

Standard(s)

NGSS

3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

EE Guidelines

Grades K-4

Strand I.G. Drawing conclusions and developing explanations – Learners can develop simple explanations that address their questions about the environment.

Strand 2.2.A. Organisms, populations, and communities – Learners understand basic similarities and differences among a wide variety of living organisms. They understand the concept of habitat

Materials

- Nature Journal
- Pencil or pen

Could also use:

- Markers
- Watercolors
- Other art supplies used to journal

Where are Open Spaces? Continued

For the Educator

Nature is all around us. From forests to city parks, there is always somewhere to explore. Taking time to connect and appreciate the outdoors will always be a fulfilling experiences for everyone. Nature journaling is a simple way for students to observe what is happening in different open spaces. It allows them to identify critters and plants and make detailed drawings and notes about what is happening.

Activity

1) Nature journals are used to record observations in nature. Each journal is unique and can include words, drawings, and specimens. Inform students that today they will be going outside and recording what they observe through at least 2 of their senses and record them in their nature journal.

Senses include:

- Touch
- Smell
- Sight
- Sound
- Taste

2) Take them outdoors with journals and pencil or pen. Encourage them to find a places away from peers. This could be in a schoolyard, city park, backyard, etc.

3) Give students ample time to create their nature journal page
4) Students can be given extra time to add watercolors and other artistic touches to their journal.
5) Have students share with peers and talk about their observations. This can be done as pairs or small groups.
6) Encourage students to go outside when they can to continue their journals.

Assessment

Formative: Their nature journal can be reviewed to assess if they could identify 2 senses and have attention to detail in their drawings and descriptions.

Walkability: Making A Walkable City

Time

30-40 Minutes

Objectives

Students will be able to:
- Define "walkability"
- Identify and implement 3 or more characteristics of a walkable city in their plan

Standard(s)

NGSS
5-ESS3-1.
Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

3-5-ETS1-1.
Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

EE Guidelines
Grades K-4
Strand 2.3 A. Human-environment interactions - Learners identify ways that people depend on, change, and are affected by the environment

Strand 3.1 A Identifying and investigating issues - Learners identify and investigate issues in their local environment and communities

Strand 3.1 C Identifying and critiquing alternative solutions and courses of action. Learners develop plans, including possible design solutions, for addressing selected local environmental issues.

For the Educator

Knowing what elements that make a city or neighborhood walkable is valuable when coming up with ways to improve the area. The walkability of a city measures how friendly the area is to walking. Things like pedestrian walkways, safety, and how close essential shops are to where you live are all important when calculating the walkability of a city. We can assess walkability on a scale out of 100. This score take many factors into account like the distance to grocery stores, school, parks, libraries, restaurants, and shops. Walkability affects the health of the community, the surrounding environment, and the local economy. More people walking means less congested streets and lower CO2 emissions, healthier citizens, and can increase flow into retail spaces. The most walkable cities take pedestrians into consideration when planning to make sure they stay safe and can get around easily.

Materials

Journals

For 2D
- Square of paper at least 1ft by 1ft
- Colors
- Pencil
- Rulers

For 3D version
- 3ft by 3ft base
- Various crafting & building supplies

Some ideas may include
- Cardboard boxes
- Construction paper
- Glue/ tape
- Colors

Activity

Students may work individually or in groups.
1) Show EcoVentures "Walkability" video.
2) Explain that walkability measures how friendly an area is to walking.
3) Brainstorm as a class or in small groups attributes that increases walkability Review list of walkable attributes with students.

Some attributes include:
- Close to essential places: library, school, grocery store, parks
- Accessible and safe walkways
- Safe places to cross the street
- Accessible to people of all abilities including wheelchairs, walkers, visually impaired people, etc.
- Good parking
- Wider sidewalks
- Close to entertainment options

Walkability Continued

- Restaurants
- Museums
- Retail shopping

- Mixed use building
  - Shops on bottom apartments on top
- Shaded walkways
- More trees/plants planted
- Curb appeal
- Make building visually pleasing to encourage more pedestrians

4) Assign students to plan a walkable city by incorporating at least 3 components of a walkable city with their home being in the center.
5) Have students create a scale (i.e. 2 inches = .5 miles
6) After they are done with their plan. this project can be extended to make a 3D model of their city using various craft supplies.
7) Share their city with others and explain what makes their city walkable.

Assessment

Formative:
Have students do a small presentation on their walkable city and share which aspects of a walkable city they incorporated.

Increase Rigor

For older students, have them map their neighborhood centered around home or around school and create a model that will increase the walkable score of their area. This can be turned into a service project where they present it to local neighborhood council members or other local politicians.

Resources

walkscore.com

Consumerism

What to Do With Old Clothes?

Time

30-40 Minutes

Objectives

Students will be able to:

- Identify and implement ways to repurpose old clothes

Standard(s)

NGSS
MS-ESS3-3.
Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.

EE Guidelines
Grades K-4
Strand 3.1 A Identifying and investigating issues - Learners identify and investigate issues in their local environment and communities

Middle School
Strand 1.A. Questioning - Learners are able to develop, focus, and explain questions that help them learn about the environment and do environmental investigations

Materials

- Old clothes (socks, pants, shirts, etc.)
- Scissors
- Dog toy crafting instructions printed from resources
- Tennis balls (preferably old ones)

For the Educator

Having practical ways to repurpose and alter old clothes is great for lessening the amount of trash in landfills and can be a creative outlet. 12.8 million tons of textiles are thrown into American landfills every year. This activity will provide students with engaging ways to create dog toys with old clothes.

What to Do With Old Clothes? Continued

Activity

Before the lesson

- Have students collect damaged and worn clothes that parents would allow them to cut up and repurpose
- Find a local animal shelter that will accept donations of homemade dog toys

1) Discuss with students that there are many things that we can do with clothes they do not want or cannot wear anymore.

2) Brainstorm ideas on what to do with these items

Some ideas may include:

Donation
Cleaning rag/supplies
Change or alter to a new clothing item (i.e. long jeans with holes as shorts)
Add patches or other decorative additions
Pet toys

3) Explain to students that they will take the old clothes that they have collected to create pet toys for the local pet shelter.

Students' Choice

- Students can do self guided learning to create their own pet toy creations through tying, braiding and knotting. Let their imaginations run wild.

More Guidance

- If students need more guidance or examples, print instruction guides and/or pictures to help them.

4) Discuss that repurposing old clothes helps the environment and their community.

Assessment

Formative:

Question the students about what they can do with old clothes.

Resources

Claudio, Luz. "Waste Couture: Environmental Impact of the Clothing Industry." Environmental Health Perspectives, vol. 115, no. 9, 2007, pp. A448–A454. JSTOR, www.jstor.org/stable/4626880.

http://www.sewhistorically.com/5-different-diy-no-sew-t-shirt-dog-toys/
https://colininchicago.wordpress.com/2015/07/28/diy-water-bottle-dog-toy/
https://www.happyfamilyart.com/craft-tutorials/recycled-t-shirt-dog-toy/

Distribution

EcoVentures lessons will be uploaded to a free website called sharemylesson.com. This websites allows lessons to be uploaded individually and can be rated and discussed by users of the content. It will allow lessons to be linked in the video description for anyone to view and use.

Impact

EcoVentures lessons will serve as an extension of the videos to get students thinking about how the content relates to their local environment. These activities are aimed at getting students involved in their communities whether it is in their home, classroom, school, neighborhood, or city as a whole. By engaging with the content, it will get them outside and have a chance to put the knowledge learned in the videos to use in the real world.

Component Three: Farm to School Videos for Garden City Harvest

Component Three involves the scripting and creation of videos for Garden City Harvest's Farmer in the Classroom program. The Farm to School Program "encourages youth to explore connections between food, agriculture, science, and their everyday lives." This program helps children create a connection with food, learning where it comes from, nutrition, and healthy choices. The program consists of six lessons for 2nd grade classrooms with two field trips to the PEAS Farm.

In creating curated video content for the program, not only will it have the specific resources it needs to enhance lessons, but it will also provide schools outside of the Missoula School District by providing classroom teachers the resources and content knowledge needed to teach agricultural concepts. These videos will go along with Garden City Harvest's already existing curriculum.

The six lessons include:

Montana Storage Vegetables
Where Do Fruits Grow?
Bees & Wasps (& Hornets)
The World of Vegetable Seeds & Montana's Most Grown Crop
Cows & Plants
Planting Seeds

Process

The process of producing the Farm to School videos was similar to EcoVentrues. The difference was adapting the current lesson content in the lesson plans. Lessons were deconstructed to identify which aspects would work well as a presenting the knowledge aspects of the content and which parts of the lesson would be done with students in the classroom. The six lessons were broken down into eight scripts.

The videos that were scripted are as follows:

Montana Storage Vegetables*
Where Do Fruits Grow?*
Plant Life Cycle
Wheat in Montana
Pollination
Bees & Wasps
Cows & Plants
Planting Seeds

Videos marked with (*) indicate videos that have been produced.

The scripts made sure to keep the language simple, show a lot of examples, and define new words verbally and visually on screen.

MT Storage Vegetables - Script

Run time: ~ 3:10
Materials list:
- *Magnifying glass*
- *crate/containers with veggies*
- *Onions*
- *Garlic*
- *2 different winter squash*
- *Potatoes*

In front of the root cellar

Hey! Take a look at this funny tiny building. It looks like it goes underground. Let's investigate what's inside.

Go inside the cellar to find various storage vegetables inside

It's chilly in here and look at all these vegetables! This tiny building must be a root cellar! Root cellars are a kind of underground refrigerator that run without electricity on farms.

Root Cellar definition in text on screen

Because it is underground, it stays cool all year round to store vegetables. Let's take a closer look at the vegetables we found in our root cellar.

Outdoors with the storage veggies spread out on table

These are all storage vegetables that we can grow and save for a time after harvesting them even without a proper refrigerator.

Storage Vegetable definition in text on screen

Storage vegetables were important in places with cold weather, like Montana, because people were not able to farm in the winter.

Clips of variety of veg in grocery store

Today, we are able to go to the grocery store and get vegetables like broccoli and fruits like grapes that are from different places around the world when we want them because of refrigeration.

Table focusing on garlic & onion

Onions, shallots, and garlic are can be stored for several months after they are harvested. Garlic is harvested in late-July and onions and shallots are harvested in September.

Footage of hanging/curing veg

These vegetables need to be cured first so they can last long in storage.
Curing means

Curing definition in text on screen

that they need to dry out in a warm, dry place so their outside papery skin can get thicker and protect the inside layers of the vegetable.

Show papery skin being peeled to reveal inside layers

This takes about 2-3 weeks.

Show winter squash 2 different ones

Another common storage vegetable is winter squash. Winter squash come in many different shapes, colors, and sizes. They also need to be cured, like the onion, so the outside of the vegetable can keep the insides safe.

Cut inside a winter squash

Not only can we eat the flesh, but we can also eat the seeds. Yum!
Because the winter squash has seeds, it is the fruit part of a plant.

Close ups of seeds inside and roasted seeds to eat

Potatoes are another great vegetable that we can grow and store in Montana. Potatoes also have an outside skin, but unlike the onions and winter squash, we can eat it. Most of the healthiest nutrients are in the potato skin.

When potatoes are stored in a cool, dark, dry place, they can last up to 4-6 months in someone's house! In a root cellar, it can last even longer. Up to 10 months! That's almost a year.

Show other storage vegetables as they are named

There are so many other storage vegetables like beets, cabbage,carrots, parsnips, and, even though it's a fruit, apples.

Back in front of root cellar

Storage vegetables are still so important into farmers all over the world and in Montana. They are very healthy. We can grow storage vegetables in home gardens, farms, and your school garden. Which storage vegetables do you love to eat?

Where Do Fruits Grow? - Script

Run time: ~2:30
Materials:
- *Magnifying glass*
- *Globe*
- *Banana w/sticker*
- *Mango*
- *kiwi*

Outside in the snow with a banana

I love eating bananas everyday, but I've never seen a banana grown in Montana. Have you? Today we are going to investigate where fruits that we can't grow in Montana come from.

With globe

To understand where some fruit grow, first we need to look at our planet.

Different places have different weather. This line right here marks the middle of the earth and splits it into two: the Northern Hemisphere and the Southern hemisphere. This is called the equator.

Equator definition on screen

The closer a place is to the equator, the warmer it is.
Do you know what happens the further you get from the equator?

Show with arrow in editing

That's right the more we move away from the equator the colder it gets. Look there's Montana.

Different parts of the world can grow different plants. Places that have long days and a lot of warm weather can grow fruits all year long.

Show fruit

We like to call these places tropical. Some tropical fruits include bananas, mangos, and kiwis. These only grow where it is warm most of the year.

Tropical fruits travel really far to get to us.

Outside of greenhouse

In Montana, we can start growing food in the beginning of March inside of greenhouses until the middle of October when it starts to get too cold for plants. When it gets too cold, we have something that we call a frost, or when water starts turning into ice.

Frost definition on screen

This can make plants die or go dormant.

Dormant means they don't grow again until it is warm out, like hibernating. This causes leaves to change color and fall off trees in Autumn.

Dormant definition on screen show orchard

We can grow fruits like apples and pears here in Montana and they will be ready to harvest in the Fall. When it is winter here, these fruits could come to us from far away so we can still enjoy them in the chilly winter season.

Let's take a closer look at my banana and other tropical fruits.

Close up of banana sticker

Most produce that we buy comes with a sticker to show us where it was grown. This banana came from Guatemala. That's about 3,400 miles away from Missoula or almost 44 days of walking nonstop!

Show distance on globe place sticker on globe/map & the segment of fruit
Kiwi - California - 1,080 miles
Mango - Peru - 4, 500
Dragonfruit - Vietnam - 7,500

That's so far!

Same background as beginning scene next to globe

Next time you are eating or shopping for fruits, look at the sticker and see if it came from Montana or somewhere warm and tropical near the equator!

Plant Life Cycle - Script

Run time: ~1:40
Materials:
- *Seeds of varying size and color*
- *Tomato seed*
- *Stop motion supplies*
- *Markers*
- *Matte paper - white*
- *Color pencils*

Inside Greenhouse with different seeds

Seeds come in different shapes, colors, and sizes. From teeny tiny brown ones to big white ones, seeds are very important to how we grow of our food.

Today we are going to learn about the plant life cycle.

A life cycle is all parts of a living thing's life from birth to death. This can be a little different for different living things.

Life Cycle definition on screen

Seeds are both the beginning and end of most plants' life cycles.

Stop motion showing tomato plant cycle

Everything that is needed to make a new plant can be found inside the seed coat, which is like an outer shell.

Seed coat definition on screen

Roots, stem, leaves, and food are all inside to help it start to grow. Most farmers start their plants in greenhouses when it is too cold outside.

Once the seed is planted in a warm, wet place, it will start to sprout and grow roots, a stem, and little baby leaves for it to collect sunlight.

Sprout definition on screen

They will grow and grow and when they are big enough, they will make a flower.

This flower will be pollinated by pollinators, like bees or butterflies, and a new seed will start to grow inside of a fruit.

That's why we always find seeds in our fruits and vegetables.

Show inside of zucchini or apple

When the plant is ready, it will drop the fruit as it dies or becomes dormant. The new seed may end up in the soil to create a new plant and the cycle continues.

Sometimes seeds can rot, be eaten, or frozen which would end the cycle.

If the seed ends up in the perfect conditions, it grow again!

On farms, we harvest the fruit before that can happen so we can eat it. We can also save some seeds for the next growing season.

There are seeds in almost everything we eat.

Table with seeds piles appear when listed / cross section of seed we eat with fruit

Peas, beans, sunflower, corn. Oats, chia, rice, quinoa, cucumber, tomatoes, and so many more!

Back in greenhouse

Seeds are such an important and yummy part of how we get food.

Wheat in MT - Script

Run time: ~1:20
Materials:
- *Wheat seed*
- *Grown wheat*
- *Map of Montana*
- *Wheat grinder*

In field/ nice farm background

Did you know that the most grown crop in Montana is a seed? Have you seen this before?

Show grown wheat

It's wheat! Wheat grows really well in Montana because it doesn't need much water and can survive our cold winters.

Show Golden triangle on map of Montana

Most wheat is grown in this area here. We call it the "golden triangle area". Montana is the 3rd highest producer of wheat in the United states.

It is the most important food for humans grow in the word which is why we have so much of it.

B-roll of a wheat farm

Wheat will grow really tall. When farmers are ready to harvest, they will cut down the stalks (?)

Show wheat

This is how wheat looks when it harvested. To use it, we extract, or take out the seeds. The seeds look like this.

Show Seeds

Do you notice how small they are? (or other describing word)
It doesn't stop there!
When it's ground up, we make flour!

Show grinding into flour

Flour is used in so many foods like bread, cookies, cakes, cereal, pasta, waffles, noodles, and more. In some cases, wheat is even used as fuel for cars and tractors.

Show some examples of products with wheat

Back in field with bread or other wheat product

What are some wheat products that you like to eat?

Pollination - Script

Run time: ~2:25
Materials:
- *Honey*
- *Honeycomb*
- *Bee frame*
- *Bee keeper suit*

Looking a bees through observation window in hive

I'm just observing the bees. Come and take a closer look.

Few seconds of up close bee action

Back to talking in front of the bees

Aren't they fascinating?

Did you know that bees are one of the most important workers in any farm or garden? Without them we would not be able to grow fruits or flowers.

Today we are going to learn all about bees!

There are 3 different types of bees: Queen bee, drones, and worker bees.

Voice over with time lapse drawings of the bees or footage of the specific bees

Every hive has one queen bee. The queen is responsible for laying eggs that become new bees.

Done bees are male bees that only have one job. There are about 200 drones that help the queen bee to create new bees.

Worker bees are female bees that collect nectar and pollen and take care of larvae, or the baby bees. In every hive there are 20,000 to 60,000 worker bees! That's a lot of bees!

Close up of bees on flowers

Bees are so important to humans because they help make the food we eat. We call them pollinators.

Pollination is what happens when bees travel from flower to flower.

Pollination definition on screen

Time lapse drawing or stop motion

When the bees go inside the flower to gather nectar for honey production, the pollen sticks to the tiny hairs on the bee's legs.

As the bee travels, some pollen is rubbed off and the flower will start making seeds. Often times, the seeds are surrounded by a fruit which is what we humans end up eating!

Bees will also use pollen to make “bee bread” which they use for feeding larvae and worker bees.

Without bees, we wouldn’t have fruit!

Sitting down talking to camera

There is something else bees make that is sticky, sweet, and golden. Do you know what it might be? Honey!

Pull out jar of honey and show close ups of it

Bees make honey with the nectar they have collected. These worker bees can collect nectar within 4 miles of the hive and mix the nectar with an enzyme in their mouth, kind of like bee saliva.

Show honeycomb

When they buzz back to the hive, it is dropped into the honeycomb. Honeycombs look like tiny stop signs that the bees make out of wax.

Bees will flap their wings to evaporate water from the nectar and the nectar becomes sticky honey!

B-roll of honey harvest

Honey is harvested by people to eat but beekeepers make sure to leave enough so the bees have enough food for the colder months.

In front of hive again

Bees are so amazing! We can even say that they are the BEE’S KNEES!

Bees VS Wasps - Script

Run time: ~1:50
Materials:
Taxidermied bee and wasp OR drawing of bee and wasp

Close ups of bees and wasps

At a quick glance, bees and wasps can look very similar, but they are completely different insects!

In person with nice background (native garden)

Do you know of similarities and differences between bees and wasps?

Let's investigate and see!

Bees and wasps look different up close.

Show using stock footage or drawings of bees and wasps - maybe even taxidermied bees and wasp?

Wasps have a longer body that has a skinny "waist" in the middle and a few hairs on their bodies which make them look smooth.

Bees have a body that look like they have no waist and can be hairy all over. This bee looks pretty fuzzy. These hairs will help catch pollen and be transported, or moved, from flower to flower as the bee collects nectar.

Close ups of bees and then b-roll of stingers

Bees and wasps also have different stingers. A wasp has a smooth stinger and can sting multiple times.

Bees stingers can vary based on the type of bee. Honeybees have barbed stingers which means that the stinger comes out only when they sting. Sweat bees and bumblebees have smooth stingers which means their stinger stays on the bee after they sting so they can use it many times.

Footage of wasps and bees around the foods they eat

The things wasps and bees eat are also different. Wasps feed on many different things. Some will eat insects like ants, spiders, flys and bees as well as rotting food.

Bees only eat pollen and nectar.

In front of beehive

It is important to remember that both bees and wasps only sting when they feel like they are in danger, although wasps can be more aggressive. So keep calm when they come near you.

Now that we know more about bees and wasps, do you remember what are some differences between them?

Cows & Grass - Script

Run time: ~1:50
Materials:
- *cow (s) to film in front of*
- *Cow products*
- *Meat*
- *Milk*
- *Cheese*
- *Jello*
- *Leather*
- *football*
- *Soap*
- *medicine?*
- *Stop motion materials*

In front of cows

Did you know that for every 1 person in Montana, there are three cows? That's millions of cows! (or that's 4 million: https://www.nass.usda.gov/Quick_Stats/Ag_Overview/stateOverview.php?state=MONTANA)

From food to poop, cows play a big part in Montana agriculture.

One big thing cows give us is manure or cow poop! Manure is used as fuel and as fertilizer in farming to make sure the soil has all the nutrients it needs for plants to grow.

Animation of grass cycle

It all starts with grass. There several steps the grass needs to go through for the cow to turn it into manure.

First, the cow swallows the grass whole where bacteria in the stomach starts break it down.

Cows are "ruminant" which means that they have four chambers in its stomach.

Ruminant definition on screen

Next, it comes back up through the esophagus to the mouth where the cow chews it again. This chewed grass is called "cud"

Cud definition on screen

Cows chewing b-roll

Cows chew cud for 8 hours during the day. You've probably have seen a cow do this!

After, the cud is swallowed and the stomach extracts, or takes out, nutrients and protein for the cow to grow.

Finally, just like every animal, it get pooped out as manure!

The manure can be collected and spread on fields to help add nutrients to the soil.

In front of cow

There are many other things that we can get from cows.

B-roll of items as listed

They can provide food, like meat, milk, cheese, other dairy products, and even Jello. We also use them to make leather, footballs, and medicine.

In front of cow

Montana is the perfect places to grow cows because our or our large amount grassland so they can graze.

Cows help grass grow and the grass helps the cows grow. What are some things that you use that cows provide us?

Planting Seeds - Script

Run time: ~2:00
Materials:
- *Seeds of varying size and color*
- *Stuff in Greenhouse*
- *Trays*
- *Soil mix*

Close up of different seeds

Some are round and tiny. Others are large and rough. Seeds can come in so many different shapes, sizes, and colors.

In greenhouse with people planting in the background OR outside of greenhouse with view of people working in the background

No matter how they look, they are all important to growing the foods we eat.
Today, we are going to learn all about planting seeds!

Can you remember where seeds like to be planted?

Seeds need to planted in warm, wet soil. We are starting our seeds in the greenhouse today because it is still way too cold for the seeds to grow outside.

A greenhouse is a building that traps the heat plants need to grow and protects them from the cold and rain.

When seeds are planted in the warm and moist soil, they sprout or burst out the seed coat. This is called germination.

Germination definition on screen

Let's go see what is happening inside the greenhouse!

Inside greenhouse - voice over of actions being shown OR have farm educator show us how

When planting seeds we want to be careful about how deep we plant them. If it is too deep, it won't sprout. If it too shallow, it may not be able to grow sturdy roots. The rule is to plant a seed about twice as deep as it is wide.

For very small seeds like these, they need to be very shallow and sometimes they will be fine if they are just sprinkled on top of the soil.

For larger seeds like this bean, I like to measure how long it is on my finger, double it, and poke a hole that deep in the soil.

Make sure to remember to water and keep them warm when they are little. Once they start peaking out of soil, they will need sunlight too.

In front of finished freshly planted trays

Just like people need food, water, and oxygen to work, plants need certain things to grow too!

Can you remember what newly planted seed needs?

Is there anything else that you think a plant needs once it sprouts and grows bigger?

Happy planting!

Montana Storage Vegetables

- Root Cellar (Outside)
  - Opening and close
- Root Cellar (Indoors)
  - Find storage vegetables
  - Define “root cellar”
- At table with backdrop
  - Go over and discuss storage vegetables
- B-roll
  - Cut storage vegetables
  - Curing vegetables
  - Other storage vegetables
    - Beets
    - Cabbage
    - Carrots
    - Parsnips
    - Apples

Where Do Fruits Grow?

- Field with snow in background
  - Opening with banana
- Field with globe
  - Close ups of globe
  - Closing
- Outside of Greenhouse
  - “In Montana…”
- Orchard
  - Fruits grown in MT
- B-roll
- Stock photos
  - Tropical farm
  - Fruits
    - Banana
    - Mango
    - Kiwi
  - Growing tropical fruits
    - Pineapple
    - Coconut
    - Papaya
    - Banana
  - Greenhouse
    - Plants growing
    - Outside of greenhouses
  - Orchard
    - Dormant trees

Close ups of tropical fruit, sticker, & cutting
Banana
Mango
Kiwi
Dragonfruit
Maps of Missoula to
Guatemala
CA
Peru
Vietnam

Vegetable Seeds/Plant Life cycle

Inside greenhouse
Opening
Closing
Stop motion
Tomato plant life cycle
Seeds in piles
B-roll
Inside greenhouse
Close up of plants

Wheat in Montana

Field (wheat field in possible)
Opening with grown wheat
Closing with bread
Maps
Golden triangle
B-roll
Wheat farm
Wheat harvest
Close ups of seeds
Wheat grinding to flour
Wheat products

Pollination

In front of beehive
Opening
Closing
Native garden - table?
With honeycomb and honey
B-roll
Bees working in hive
Bees flying
3 types of bees
Bees on flowers
Bee bread
Honey
Honey comb
Honey harvest

Bees vs Wasps

- Close-ups
  - Bees in nature
    - Flying
    - Eating
    - Bee bread
  - Wasps in nature
    - Flying
    - Eating
  - Taxidermied bee
    - Body
    - Fuzz/hair
    - Stinger
  - Taxidermied wasp
    - Body
    - Waist
    - Stinger
- Native garden
  - Opening
- In front of hive
  - Closing

Cows & Grass

- In front of cows
  - Opening
  - Closing
- Stop motion/animation
  - Grass cycle
- B-roll
  - Cows eating/ chewing cud
  - Cows grazing
  - Cows pooping
  - Cow products
    - Meat
    - Milk
    - Cheese
    - Jello
    - Leather
    - Footballs
    - Medicine

Planting Seeds

- Greenhouse
  - Outside with view inside with people planting
    - Opening
  - Freshly planted tray
    - Closing
- With farm educator
  - Showing how to plant seeds in trays
- B-roll
  - Different seeds
  - People planting seeds
  - Greenhouse plants
  - Greenhouse watering

Next Steps

This project can be continued by another interested student or outsourced to a production studio. The Farm to School videos should be filmed over the course of a full farm season to show the changes throughout the year. It would be useful to be able to show activities like harvesting produce and honey, following a plant from the greenhouse to being transplanted in the field, and the curing process for squash and alliums.

The use of several locations would also provide students with a greater visual of the content. By showcasing various Garden City Harvest locations like farms, community gardens, and school gardens, students can see the different scales of production. Obtaining footage of a wheat and cattle farm will also enhance the videos dealing with specific industries in Montana. Not all students will have the opportunity to see a wheat or cattle farm.

Impact

Curated video content for Garden City Harvest can have a great impact on the Farm to School Program. This content will meet the needs of specific visual examples for the content being discussed in the lessons. It will also give students and educators the ability to reference back to the videos as a refresher before the next Farmer in the Classroom lesson and for extension activities. This would allow the students to grasp concepts through repetition and prevent the possibility of the farm educator reteaching concepts.

This will also allow for the expansion of the program for educators to use outside of the city of Missoula. Visual examples in the videos will provide context to students who are unfamiliar with agriculture. It also gives educators the ability to teach lessons without any previous knowledge in agricultural based education.

Conclusion

Challenges

This project included many obstacles from learning how to script and produce efficiently, obtaining permission to film content, and scheduling around weather issues.

Script writing and production was more of a time consuming process than I anticipated on this scale. Many hours were spent planning and organizing before ever shooting the content on location. The more planning we put in the beginning stages, the less time we had to spend filming in busy or frigid locations. We spent several months in the planning stage to make sure that our time in the field was used wisely. It took awhile to get the hang of what process worked best.

Gaining permission from places in order to film became an obstacle. The first concept that was made for the consumerism unit was about responsible grocery store shopping. This video would have showcased ways to lessen the amount of ways to reduce waste. Although we contacted the grocery store that served as an ideal shop to film this video several weeks and advance of our planned shooting, we were eventually denied. In hindsight, we should have contacted multiple stores in the hopes one would let us film, but due to time constraints, a different idea was chosen for that unit.

Timing also became a great challenge in both video aspects. Even if all of the scripts were finished and the shot lists compiled, filming outdoors always dependent on weather. This particular Spring was a late one. All the videos could have technically be filmed in multiple feet of snow, but, like in all visual content, backgrounds need to be made visually interesting to the viewer. Filming snow at every angle would have been monotonous. There was, of course, rain storms that came with the snow melt which posed a threat to all the equipment we were using. The Farm to School videos also had the added dependence on the farm season. Ideally, in the videos that were produced, things like harvesting of the produce and showing the process some vegetables need to go through would have provided greater examples for the viewer.

In approaching this project again with my new knowledge, I would have began developing this project earlier in order to correspond with the weather and farming season. This would have allowed for more video content to be produced.

Reflection

These three portfolio pieces show how environmental education can be effectively integrated with new media. By using the internet as a tool, environmental information can be brought to them and influence viewers to get outdoors and engage with their local areas. Utilizing video and social media to bring attention to topics can fill the need of a more environmentally literate society.

The next steps for EcoVentures is to hopefully have it as a sustainable YouTube channel where new content can be posted every other week once it is launched. With the large array of environmental topics to cover like watersheds, eating local, environmental justice and more, there will always be new viewpoints and information to talk about. Ideally, integrating interviews with experts related to the subject matter from park rangers to recycling plant managers will provide better insight to the content.

One example of this would be taking a field trip to a landfill and discussing with an expert on what landfills are, how they are made, and their perspective on how to reduce waste. It would also be beneficial to the audience to see diverse people in these roles so they can also see themselves reflected in environmental jobs.

The Farm to School videos were made to test out and see what lessons could look like in a video format. I believe it would be a great venture when it comes to future expansion of the education content at Garden City Harvest. It could help educators that are not fortunate enough to have visiting farmers in their classroom. It can also provide visual context for students that have never been to or seen a farm before.

With the continued and future growth of new media in education, I hope to use my new skill set to promote environmental education for all to learn. The the vast array of topics in environmental issues, there will always be a need to educate. Instead of fighting against the use of technology and the internet in our quest to get people outside, we should find ways to meet people where they are at and use technology as a tool to engage with their environment.

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https://www.learner.org/exhibits/garbage/solidwaste.html

How to Recycle
https://berecycled.org/search/
https://www.recycleacrossamerica.org/

Open Spaces
Leave No Trace
The Brain Scoop - “Get Outside” video: https://youtu.be/YXg55KU7mnQ
https://lnt.org/
https://lnt.org/learn/7-principles

Urban Places
Walkability
Resources:
https://www.walkscore.com/walkable-neighborhoods.shtml
https://www.vox.com/the-goods/2018/10/26/18025000/walkable-city-walk-score-economy

Open Spaces in Urban Places
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